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ABSTRACT

The American Institutes for Research (AIR) has been involved in the design and development of career education curriculum materials for well over a decade, even before the term was originated by the U.S. Office of Education. This led to the involvement of AIR in the design and development of the Comprehensive Career Education Model (CCEM). Four general constraints under which career education programs must operate are: they must be economically feasible, they must be able to operate with regular classroom staffing patterns, they must be considerate of teacher time and effort, and they must fit the needs of local users. Important factors determining the adoption of such programs are acquisition cost and teachers' and administrators' perceptions of the potential classroom utility of the material. All these aspects, and others, will be considered in the process of field testing and revision of curriculum units for CCEM. (SA)

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Field Testing and Revision of the AIR Career Education Curriculum

James A. Dunn

American Institutes for Research

Dr. Lipe has described for you some of the origins of career education and the role the National Insitute for Education and Ohio State University played in the design and development of early prototype career education units. It is my task to describe AIR's background in career education and to summarize for you some of the more recent activities which have led to our involvement as the agency for further CCEM materials revision.

AIR has been involved in the design and development of career education curriculum materials for well over a decade. Even before the term was originated by the U.S. Office of Education, AIR was making a major commitment to the infusion of content regarding career concepts, knowledge of the world of work, applied economics, individual guidance and goal oriented educational planning, and the like into regular academic curricula. Our most ambitious effort in this regard was Project PLAN which involved some 40,000 students in 13 school districts across the United States. As a result, when career education was designated a national priority of the U.S. Office of Education, we were asked to participate in some of the early studies of the practical and economical feasibility of employer-based career education.

Subsequently, we became heavily involved in the design and development of a comprehensive career education program for grades K-9, and it is that work I would like to describe briefly for you today, inasmuch as it has direct bearing on our efforts in the redesign, field test, and evaluation of the CCEM materials. Much of the information and knowledge gained from that project provides a foundation for our efforts on the CCEM project and provides an algorithm for the further analysis of procedural options.

The general goal of our antecedent project was to design and develop a career education curriculum that was comprehensive yet sufficiently flexible

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to be used in a large number of elementary and junior high schools throughout the country. One of our first tasks was to identify the constraints under which the curriculum would typically have to operate. Four general constraints were identified.

First, and foremost, the curriculum would have to be economically feasible. In order for a curriculum to survive, it must be implementable within the confines of normal school expenditures for textbooks, workbooks, and other routine instructional materials and classroom operation costs.

Second, in order for our curriculum to be adopted across large numbers of school districts, it would have to be predicated on regular classroom staffing patterns. Long term, or unduly complex, in-service teacher training, extensive use of teacher aides or paraprofessionals, or the use of new categories of technical specialists would generally preclude the continued utilization of a curriculum on anything other than a limited, experimental basis.

Third, the curriculum would have to be considerate of teacher time and effort; that is, it would have to be implementable within current allocations of teacher time and effort. Curricula which require schools either to extend the school day or to supplant portions of the curriculum with career education courses cannot be expected to long survive.

And finally, fourth, the curriculum would have to fit the needs of local users. That is, the curriculum would have to be amenable to local needs, interests, and options. Fixed, prepackaged, or canned curricula cannot anticipate all possible combinations of state, local, and personal needs. The curriculum development experience of the 1960's clearly indicates that options for selected curriculum configuration and utilization must be provided in the basic design of a curriculum if it is to be used for any extended period of time in a district, or districts.

We were extremely conscious of these practical limitations as we moved forward in our earlier work, and we still are especially sensitive to their

implications as we proceed with the revision of the CCEM materials. For example, we are making extensive effort to: revise the units so that they require less teacher preparation time; are shorter and more modular so they may be inserted more frequently, and in a much larger variety of instances in the regular academic program; and require much less in the way of ancillary resource material to support the units. Dr. Haveman and Dr. McLeod will report more fully on many of the specific steps we are taking in the revision of the units.

As we began planning for our CCEM materials revision, we were also fortunate to have had regular input from a panel of dedicated individuals who advised us on curricular matters and strategies for the introduction of career education into classroom teaching. This panel met periodically over a two-year period and provided basic input to AIR regarding its curricular activities in career education. The panel was chaired by Dr. Ralph Tyler and consisted of representatives of business, labor, public service, school administration, teachers' organizations, elected officials, the media, and the like. Panel membership and their affiliations are summarized in Appendix A. We find much of their input still valid and timely and a decided asset to us as we work on the CCEM materials.

Concurrently with the inputs of this panel during 1973-74, we also undertook a series of efforts to identify market constraints. In order to design products consonant with economic reality, it is necessary to define a reasonable product cost bracket.

As of 1971 there were 278 textbook publishers in the United States competing for approximately 500 million dollars of school textbook and instructional materials money.* In 1971, the average annual per pupil expenditure for school instructional materials was $8.12. Of this, less than 60¢ was spent on instructional materials in subject matter areas other

*A value less than that spent annually in the United States advertising women's cosmetics, and less than 1/50th of that spent annually on alcoholic beverages.

than mathematics, science, language, arts, and social studies. This is an average of only $16 per classroom (assuming 28 pupils per classroom) for all instructional materials in areas such as: art, music, drama, foreign language and physical education. Assuming a portion of this $16 could be allocated to career education materials, and that small portions of the funds allocated for mathematics, science, language arts, and social studies could also be spent on career education materials pertinent to their respective subject-matter areas, it was concluded that for career education to be economically viable, it would have to be implemented on an instructional materials budget of no more than $10-$12 per classroom per year. And even then, that rate of expenditure would assume major fiscal reallocations of five to ten percent within existing materials budget categories. Thus, it was clear that for career education to be sustained as an integral part of classroom instruction it would have to be predicated on very low-cost materials.

Acquisition cost, however, is not the only factor in determining adoption. While costs delimit the range of materials that can be adopted, adoption is also determined, in part, by teachers' and administrators' perceptions of the potential classroom utility of the material. Consequently, an important consideration in the design of materials is how to enhance the likelihood of the utilization of materials once they have been adopted. In our work in a variety of school districts, in teacher workshops and surveys, and in interviews with publishers, it became very apparent that teachers, in the 1970's, wanted units that they could implement easily and which fit into the ongoing mainstream of classroom activity. They wanted units to be relatively short, simple to prepare, amenable to independent study, and intrinsically appealing to students. They wanted to be able to scan units quickly. They wanted units to be heuristic rather than prescriptive. They wanted a variety of options within units so they could be adapted to local needs. And they wanted some assurance that the instructional exercises proffered, articulated with a larger curricular enterprise so they could be confident their career education activities did in fact contribute to the larger curricular goals of their school district.

The relevance of this kind of information for our NIE tasks is direct and telling. We have been charged with the revision of some 61 career education "units" comprising some 717 classroom "lessons."

These units vary greatly in their design and concept. The form they are currently in was dictated largely by considerations of efficiency with regard to experimental research and development. They are not in a form that is acceptable from an economic-publishing point of view or practical from a classroom instructional point of view. They do contain, however, a great deal of innovative teacher wisdom and instructional creativity. Our task is to: redesign and restructure these units; field test them; and disseminate those that have demonstrated effectiveness to the extent possible.

Given the basic constraints and guidelines necessary for circumscribing the curricular effort, the process for materials development is a relatively straightforward one. The first step in this activity was a comprehensive analysis of each and every one of these 717 lessons. Dr. McLeod will report on this analysis shortly.

Prototype materials are now being drafted according to a set of pre-established guidelines. Some of the guidelines include specifications with regard to: the degree of specificity included in the objective statements; the distribution of objectives across the various levels of the cognitive and affective domains, or across some specified learning hierarchy; the distribuiton of objectives across a master curriculum plan; the variety and distribution of various types of learning activity to be employed; the variety of social and situations contexts in which the learning is to take place; and the like.

The prototype materials will then be pilot tested as needed, and revised on the basis of this preliminary testing information. Prototype testing may range from simply having a subject read through the materials and provide critical comment, to field testing with a variety of subjects in a variety of contexts. Since the purpose of prototype testing is to obtain data for further shaping of the materials, i.e., for formative evaluation, an effort will be made to maximize the heterogeneity of the pilot test subjects.

Of particular interest will be information regarding: level of reading difficulty; clarity of instructions; the intrinsic interest of the activities; the congruence of the objectives, learning activities, and assessment procedures; and any biases that may have been inadvertently incorporated in the materials.

When the materials are felt to be ready, they will then be scheduled for systematic field testing. Here the goal will be to test the efficacy of the materials with a reasonable sample of the target population. In addition to the question of sampling and its correlate problem of control group or baseline reference group performance is the question of the validity of the experimental treatment; that is, whether the materials are actually used in the manner in which they were intended. The degree to which this goal can be achieved will be, of course, an exercise in practical research methodology and one which we will be addressing very seriously in the months ahead.

In general we have found that field test problems can be greatly ameliorated if care is taken to minimize the imposition on teachers and school districts. It has been our experience that there is great teacher and district interest in career education, and great willingness to field test instructional material. Every effort will be made to minimize the effort required on the part of the teacher.

In brief let me simply indicate that it is our plan to test prototype units in the San Francisco Bay Area and to field test revised units with cooperating school districts in five different geographic regions of the United States.

Specific test sites have not yet been selected and will not be selected for several months, but we have already received a large number of offers to participate. A little over 50 school districts have already indicated an interest in participating in the field test of the revised CCEM materials, and we expect at least as many more to contact us in the months ahead. We are encouraging any district who wishes to volunteer to do so. We will provide sample materials for their inspection and, if they wish to continue as volunteers, we will maintain them in the active pool. From this pool of active volunteers we will then select districts so as to achieve the type of balanced representation NIE desires.

In closing I might indicate that we have found one important consideration in field work of this type to be extensive information exchange. It is also important that participants identify with the larger task. In the past we

have published project newsletters to help meet these needs. A project newsletter not only provides information about the project, and its progress, to the participants and professional public as a whole, it also provides a high degree of professional visibility and personal recognition to the school districts and teachers participating in the work. It provides a concrete reference point with which they can identify. We have found this type of effort to be very useful in the past, and we will be continuing it as we move forward with the CCEM project.

We have samples of the newsletters we use, which can be picked up at the end of this session. We also have a project brochure and a sign-up sheet for those who would like to be put on the mailing list for future AIR Career Education Newsletters. And finally, we have an application form for those who think they might like to participate in the field test of the instructional units next year.